that is one of the commonest and best marked of our species: no one has ever thought of suggesting it to be a hybrid and there is no pair of species in existence of which it could be the offspring. On the other hand, *Rubus frondisentis*, a plant of intermediate characters and regarded by Brainerd and Peitersen as a hybrid, has pollen 90% perfect.[7] And sterile mutants are by no means an unknown phenomenon.

In the case of *Rubus hispidus*, the ease with which vegetative reproduction can take place may have brought about partial sterility. In that of another suspected hybrid in Equisetum, *E. litorale*, Milde has advanced an interesting conjecture.[8] He thought this might be a worn-out and dying species and its infertility a sign of fading vitality and approaching extinction. However this may be, it seems plain that the last word on the subject has yet to be spoken.

These are the reflections of one far from adequately qualified to settle the problems involved. They are not meant to do that—only to emphasize the need of considering *all* the attendant facts in such cases as that here discussed if we are to have any well-rounded and convincing explanation of them.

EAST HARTFORD, CONN.

Reminiscences of a Fern Lover.

M. A. MARSHALL.

It has been suggested that stories of "first finds" may be an encouragement to new students of the ferns, as well as pleasant reminders to those long in the ranks. Several vivid memories occur to me.

As a preface it may be said that my first lessons in field botany and plant analysis were given me as a very

[7] Bull. Vt. Agric. Exp. Sta. **217**: 43, 63, 1920.

[8] Milde Monog. Equiset. 369. 1865.

young child holding the magnifying glass for my father, who was interested in every growing thing but had poor eyes. The old Wood's Class-book of Botany was always in an easily accessible place. In those days we thought analysis of ferns too difficult for the average student, but I learned the Osmundas and a few others by name and recognized without naming a good many common species. When later I went away to school I learned that fern analysis was not impossible after all, and in my teacher's herbarium saw, among other things, the "adder's-tongue fern," described as very rare and growing in such and such places and surroundings. For a long time I looked for it in every likely place I visited; then, one summer vacation, I was in the barn at my country home when the last load of hay was brought in —what in New England is called "meadow hay" or "swale hay," a mixture of fern, wild grasses, rush, etc. In the litter on the floor some fragments that looked like the sterile part of Ophioglossum caught my eye. I knew just where that hay came from; within a few minutes I was at the spot, and there, sure enough, in the deep pockets in sphagnum made by the horses' feet, was plenty of *Ophioglossum vulgatum*, and all about me the plants clipped by the scythe. The plant is growing there yet, some years abundantly, sometimes sparingly, but always there. I have since found it in two other places on the farm and several times in other localities.

An uncle of one of my girl friends had promised her and me to take us to a place where pitcher plants grew: he had come upon it while hunting. On July 4, 1884, the promise was fulfilled. We three, behind a staid old sorrel horse, took a wood road that wound back and forth but steadily upward until we came to a pair of bars that had been long disused, for they were securely nailed and built up to fend cattle. There our guide left us to cruise about a little—he knew we were near

the spot but the going was rough and he would find a good path for us. When we were at last led to the pitcher plant place we found the flowers long past their blooming time, but the spot was most interesting—a roundish, grassy place, perhaps half an acre in extent, surrounded by not very large forest growth, here and there upon it a red maple or a gray birch, a few sarracenias, a little *Cassandra calyculata*, as we called it then. Looked at from a neighboring cliff, as we later looked, it was like a little grassy bowl set in the green of trees. We did not dare venture upon it more than a few steps, it quaked so, and the owner of the bog told me afterward that twenty years earlier we could not have gone upon it at all—a ten-foot pole would not touch bottom. On the south border of this little bog was a fringe of large ferns that I knew were not Osmundas, but they were very impressive, rising against the trees and drooping over to touch the ground again. I could draw some of them up to my eyes, and I then measured five feet six and a quarter inches. They were just beginning to fruit and on getting some specimens home they were easily determined to be *Woodwardia virginica*. Later mature specimens were gathered, as they have been several times since.

Late on an August afternoon, some years after, my companion and the horse were left in the highway while I struck across a field at a venture, wanting some Woodwardia and knowing about where the bog lay. At the far side of the field I found a barway and a path leading into the woods and as I pressed through the thick carpet of ferns under my feet, I thought, "This doesn't look quite familiar." When Mr. Davenport's article on *Aspidium simulatum* appeared in the Fern Bulletin, I said, "That is the fern I saw over by the Whitcomb bog!" It was. It is there yet in great abundance.

Then there was the first finding of *Cystopteris bulbifera*. Taken on a pleasure drive in Hartland, Vermont, on the road between Windsor and South Woodstock, a growth of what appeared to be very graceful vines on the rocks and tree stems just where a little brook drops down off Pisgah into the wayside gutter, attracted my attention. Getting out to investigate, I picked a Cystopteris frond three feet long!

These are a few of the most vivid memories, pictures that will adorn my gallery and help to sweeten life as long as life lasts.

STILL RIVER, MASS.

Experiments in Naturalizing Ferns.

EDWARD H. CLARKSON.

During the past six years, the writer has transplanted several species of ferns to the woods around Newburyport and Rockport, Mass. In most cases these ferns have lived and flourished. The only disappointment was in the case of a little group of oak ferns, *Phegopteris Dryopteris*, set out on the bank of Jackman's ravine at the Newburyport water works. This grew well for several weeks after being put there and then was most unexpectedly destroyed, being covered by several hundred pounds of sand and gravel piled on it by a very careless woodchuck that dug a hole close by!

On June 1st, 1917, I transplanted from my fern garden to a certain rocky woodland valley on Scotland road, between Newburyport and Byfield, twelve male ferns, *Dryopteris Filix-mas*. Six of these were placed against a ledge in company with a number of thrifty marginal ferns, in a well-drained spot where there was plenty of overhead light and some direct sunshine. These have grown into large plants, which this year had many large fertile fronds. The six other male ferns, set out in the same